

literature, there is little if any attempt to quantify it. We aim to quantify the difference between the efficacy and effectiveness of Metformin in terms of reducing HbA1c in patients with type-2 diabetes. **METHODS:** First, a systematic review was carried out to identify relevant randomized controlled trials (RCTs) and non-interventional studies (NIS). CENTRAL, MEDLINE (via PubMed) and clinicaltrials.gov were searched for relevant articles published within the last 20 years. RCTs and NIS which evaluated the treatment effects of Metformin in adult patients with type-2 diabetes and analyzed glycaemic control by means of change in HbA1c value were included. Studies in which Metformin was used as a concomitant antidiabetic, studies with a study period of less than three months and studies analyzing subpopulations were excluded from further research. Only German and English papers were eligible. Second, mean values of HbA1c reduction were aggregated in a meta-analysis using a random-effects model. Study heterogeneity was assessed by the I<sup>2</sup>-parameter. To test for publication bias we used funnel plots. **RESULTS:** In total 1151 articles were identified. 21 RCTs and 6 NIS were included in the quantitative analysis. Overall HbA1c was reduced by 1.012% (95%-CI: -1.186%; -0.839%). I<sup>2</sup> was 99.911% (RCTs: 99.932; NIS: 97.769) indicating high heterogeneity. The comparison of the two settings resulted in a small difference of 0.130% in HbA1c decrease between RCTs (-0.953%; 95%CI: -1.188%, -0.717%) and NIS (-1.083%; 95% CI: -1.34%, -0.826%). **CONCLUSIONS:** The results of our analysis indicate that the often-mentioned gap between clinical studies and real-world application does not exist in the treatment of type-2 diabetes with Metformin.

**PDB122**  
ANALYSIS OF THE CONSUMPTION AND PHARMACOECONOMIC EVALUATION OF USING DIFFERENT FORMULATIONS OF ALPHA-LIPOIC ACID IN THE PHARMACEUTICAL MARKET OF UKRAINE

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**OBJECTIVES:** According to the National Unified Clinical Protocol of Primary and Secondary (Specialized) Medical Care, for type 2 diabetes mellitus preparations of alpha-lipoic acid (ALA) at high doses are recommended as a pathogenetic therapy of painful diabetic neuropathy. The pharmaceutical market of Ukraine proposes 2 oral formulations of ALA preparations: standard and HRF (High Release form). Pharmacokinetic studies [MMW Spezial, Münch. med. Wschr. 1999, 141: page 2] showed that comparing with the standard formulation HRF of ALA reduces the inter-individual variability in absorption by 58% thus ensuring optimal absorption in most patients. The objective of the study was to assess the consumption of oral formulations of ALA preparations in the pharmaceutical market of Ukraine and to conduct pharmacoeconomic evaluation. **METHODS:** The consumption of 2 oral formulations of ALA preparations was assessed in indicator DDDs/1000 inhabitants/day (DDDs). To conduct the pharmacoeconomic evaluation, results of pharmacokinetic studies were used [MMW Spezial, Münch. med. Wschr. 1999, 141: page 2]. **RESULTS:** In 2013, the amount of consumption of ALA preparations in the pharmaceutical market of Ukraine was 1.79 DDDs. The portion of HR formulation accounts for 5.35% of the total amount of consumption and the consumption of the standard oral formulation of ALA preparations accounts for 94.65%, respectively. According to authors of the study, the indicator of the inter-individual variability in absorption was 22% for HRF and 59% – for standard ALA formulation. Thus NNT indicator is 1/0.37 = 2.7. Calculating the cost of achieving a therapeutically effective plasma level in 1 patient on the NNT indicates that the achievement of a therapeutic level in the blood plasma needs 2.7 times more costs when administering the standard ALA formulation compared to HRF. **CONCLUSIONS:** HR formulation of ALA has a higher cost effectiveness compared to the standard oral formulation, which makes it more efficient to use.

**PDB123**  
IMPROVING THE SYSTEM OF HEALTHCARE PROVISION FOR PATIENTS WITH HYPOTHYROIDISM IN UKRAINE

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**OBJECTIVES:** To assess medical technologies in order to increase efficiency and reduce the cost of thyroid disease treatment. **METHODS:** We made the retrospective analysis of 81 patients's medical records with hypothyroidism that were hospitalized to the endocrinology department of Ternopil University Hospital (Jan-Dec 2012). The cost of replacement therapy with levothyroxine drugs, which were preferred in practice, was analyzed. We also checked the appropriateness of diagnostics and specialist consultations according to the Protocol of medical care for patients with endocrine system disorders. **RESULTS:** The result of retrospective analysis of 81 patients's medical records with hypothyroidism showed that all patients received replacement therapy by levothyroxine. Among them 74 patients were treated with drugs of Ukrainian production while 7 patients were taking medicine of foreign manufacturer. The cost of pharmacotherapy with foreign medicines was 125% more expensive compare to Ukrainian drugs. When comparing diagnostics and specialists consultations with a Protocol of medical care for patients with endocrine system disorders we have established compliance. However, given the prevalence of complications of underlying disease by cardiovascular system disorders (in 100% of patients), we consider it necessary to add cardiologist consultation to Protocol. **CONCLUSIONS:** It is advisable to use domestic drugs in pharmacotherapy of hypothyroidism. Cardiologist consultation should be added to Protocol of medical care for patients with hypothyroidism.

**PDB124**  
BURDEN OF DISEASE OF DIABETES MELLITUS TYP-2 IN AUSTRIA

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**OBJECTIVES:** Type 2 diabetes mellitus affects 358,267 individuals in Austria and exerts a substantial economic burden on patients, healthcare systems and society. The main objective of this study is to analyse the burden of disease as well as the

direct and indirect healthcare costs of type 2 diabetes in Austria. **METHODS:** A burden of disease study, which evaluates all kinds of disease burden, like costs, quality adjusted life years (QALYs) and disability adjusted life years (DALYs) lost, was conducted. This study uses a prevalence-based bottom-up approach and projects costs over the time horizon of one year. Data were collected via literature review, published list prices and hospital records. Costs from published sources were used from the societal perspective. The direct costs include hospital, treatment and physician consultation costs. Indirect costs cover patient care giver costs as well as work absenteeism. **RESULTS:** The average costs per year of a Diabetes Type 2 are 3,242.91 EUR. Inpatient care is a major contributor to costs, accounting for 81% of total costs while drug costs account for an average of 14%. The estimated total direct annual cost for all patients diagnosed with type 2 diabetes is 1.2 billion EUR. This represents a share of 3.3% of the country's total healthcare expenditures. The average annual indirect costs for patients with diabetes mellitus type 2 amounts to 781 million EUR. Compared to the healthy population, the diabetes mellitus type 2 population have utility decrements of 251,974 QALYs. Moreover type 2 diabetes patients will lose 19,853 DALYs within one year. **CONCLUSIONS:** Type 2 diabetes mellitus is a common disease and the prevalence is expected to increase considerably in the future. The findings of this study demonstrate the high economic impact of the disease.

**PDB125**  
INTERNATIONAL DIABETES MANAGEMENT PRACTICE STUDY (IDMPS): RESOURCE USE ASSOCIATED WITH TYPE 2 DIABETES IN AFRICA, MIDDLE EAST, SOUTH ASIA, EURASIA AND TURKEY

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**OBJECTIVES:** Although type 2 diabetes (T2DM) has been globally recognised as a major public health issue with substantial economic implications, its quantitative impact in some geographical regions is not well documented. This study aimed to describe the health care resource utilisation (HCRU) associated with T2DM in Africa, Middle East, South Asia, Eurasia and Turkey. **METHODS:** Cross-sectional data from 8,156 patients recruited across four geographical regions (18 countries) was collected as part of the 5th wave of the IDMPS (2011–2012). Mean (SD) annual levels of different types of HCRU were estimated and negative binomial regression was undertaken to identify drivers of HCRU by region and country. **RESULTS:** Estimated HCRU showed that patients in South Asia (n=1,195), Eurasia (n=1,843), Africa (n=2,220) Middle East (n=2,065) and Turkey (n=842) experienced a mean (SD) of 0.4 (1.5), 1.7 (4.1), 0.6 (1.9), 0.3 (1.2) and 1.3 (2.7) hospitalisations annually. The mean (SD) annual number of diabetes-related inpatient days was 1.5 (6.8), 16.0 (30.0), 4.7 (22.7), 1.1 (6.1) and 10.8 (34.3) respectively. The mean (SD) annual number of sick days due to diabetes for the same regions were 4.6 (19.7), 17.5 (35.4), 11.6 (44.4), 1.4 (6.8) and 8.0 (34.4). Presence of macrovascular complications was a key driver of incidence of hospitalisations [Incidence Rate Ratio - IRR (CI 95%)] in South Asia [3.4 (1.4–8.5)], Eurasia [1.4 (1.1–1.8)], Africa [3.9 (2.1–7.3)], Middle East [8.9 (4.6–15.7)] and Turkey [2.9 (1.8–4.6)]. Microvascular complications were associated with increased risk of hospitalisations in all regions with IRRs (CI 95%) of 3.5 (1.8 – 7.0), 3.4 (2.2 – 5.1), 3.7 (2.2 – 5.1), 1.7 (1.0 – 2.9) and 3.4 (2.2 – 5.1) respectively. **CONCLUSIONS:** Results of this study demonstrate that in South Asia, Eurasia, Africa, Middle East and Turkey, development of micro and macrovascular complications are key drivers for economic burden of T2DM.

**PDB126**  
HEALTHCARE USE AND EXPENDITURE FOR DIABETES IN BANGLADESH: A MATCHED-CASE-CONTROL STUDY

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**OBJECTIVES:** Diabetes imposes huge social and economic impact on nations. However, information on the costs of treating and managing diabetes in developing countries is limited. The aim of this study was to estimate healthcare use and expenditure for diabetes in Bangladesh. **METHODS:** We conducted a matched case-control study between January and July 2014 among 591 adults with diagnosed diabetes mellitus (DMs) and 591 age, sex, and residence matched persons without diabetes mellitus (non-DMs). We recruited DMs from consecutive patients and non-DMs from accompanying persons in BIHS hospital in Dhaka, Bangladesh. We estimated the impact of diabetes on healthcare use and expenditure by calculating ratios and differences between DMs and non-DMs and tested for statistical difference using t-tests. **RESULTS:** DMs had two times more days of inpatient treatment, 1.3 times more outpatient visits, and 9.7 times more medications than non-DMs (all p<0.005). The total annual per capita expenditure on medical care was 6.12 times higher for DMs than non-DMs (USD 635 vs. 104, respectively). Among DMs, 9.8% reported not taking any antidiabetic medications, 46.4% took metformin, 38.7% sulphonylurea, 40.8% insulin, 38.7% any antihypertensive medication, and 14.2% took anti-lipids over the preceding 3 months. **CONCLUSIONS:** Diabetes significantly increases healthcare use and expenditure and is likely to impose a huge economic burden on the healthcare systems in Bangladesh. The study highlights the importance of prevention and optimum management of diabetes in Bangladesh, and other developing countries, to gain a strong economic incentive through implementing multi-sectoral approach and cost-effective prevention strategies.

**PDB127**  
EPIDEMIOLOGY AND COSTS OF PERIPHERAL ARTERIOPATHY IN DIABETIC PATIENTS: A POPULATION-BASED STUDY